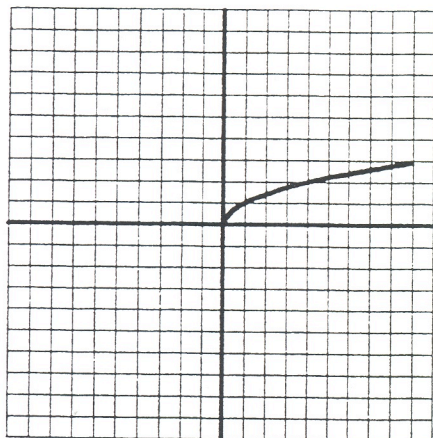


NAME \_\_\_\_\_

PERIOD \_\_\_\_\_ DATE \_\_\_\_\_

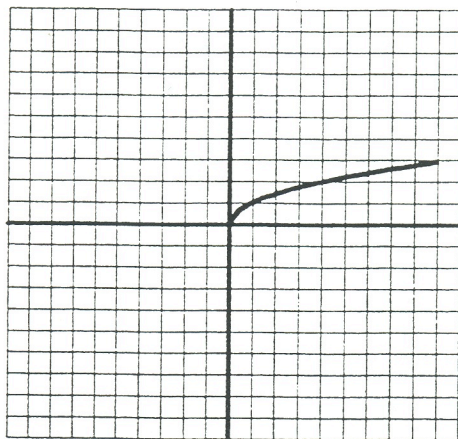
### SYMMETRY, TRANSLATIONS AND REFLECTIONS

1)  $y = \sqrt{x}$



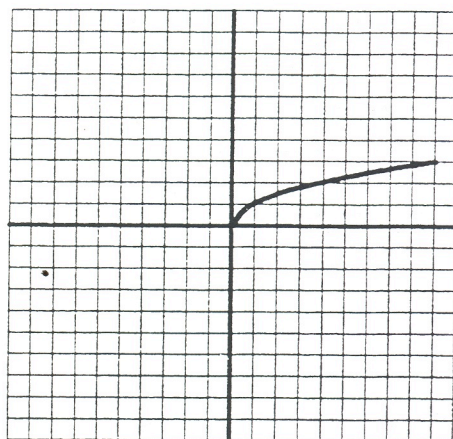
Basic Graph

2)  $y = \sqrt{x-4}$



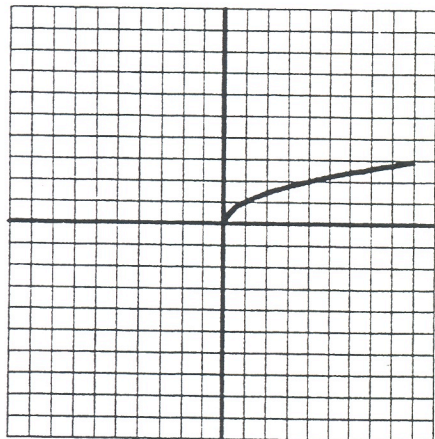
\_\_\_\_\_

3)  $x = \sqrt{x+4}$



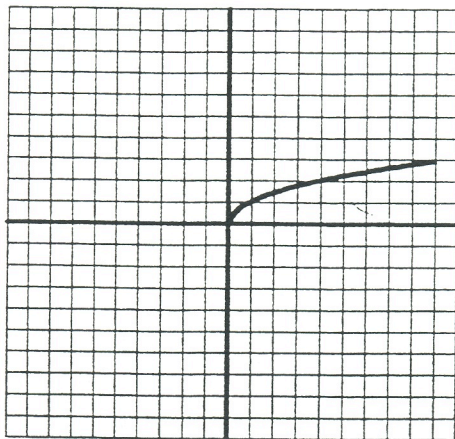
\_\_\_\_\_

4)  $y = \sqrt{x} - 4$



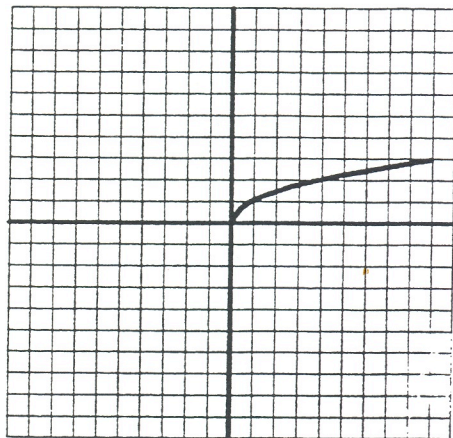
\_\_\_\_\_

5)  $y = \sqrt{x} + 4$



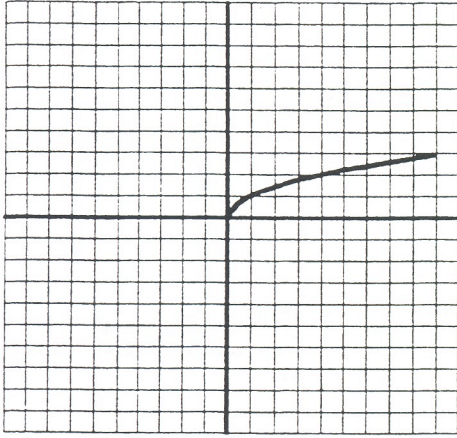
\_\_\_\_\_

6)  $y = -\sqrt{x}$



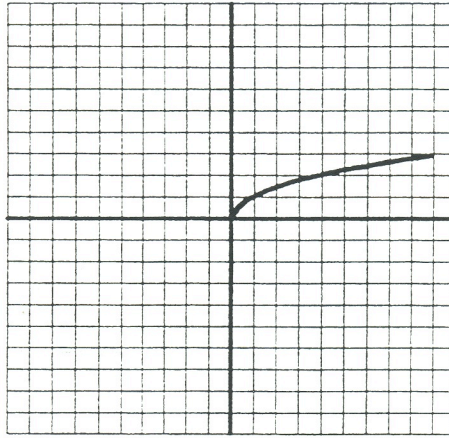
\_\_\_\_\_

7)  $y = \sqrt{-x}$



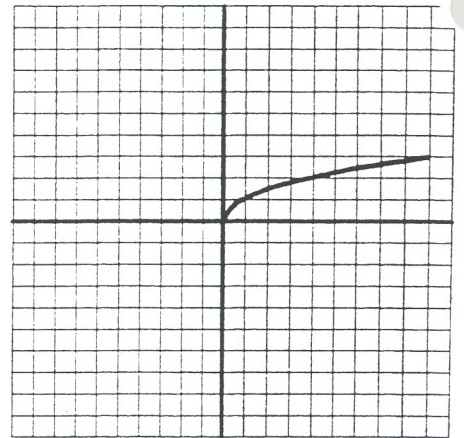
\_\_\_\_\_

8)  $y = 4\sqrt{x}$



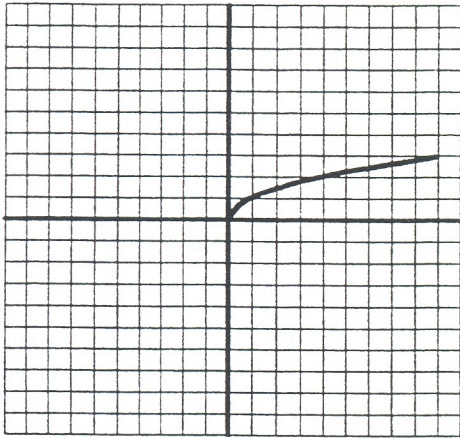
\_\_\_\_\_

9)  $y = \frac{1}{4}\sqrt{x}$



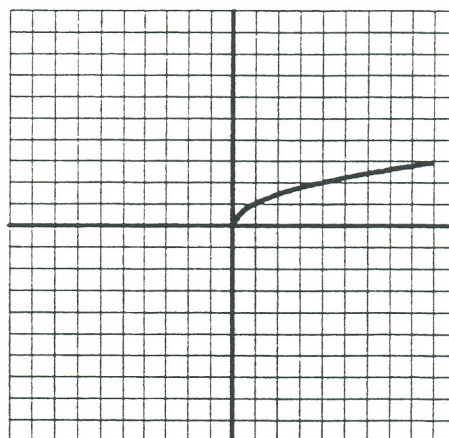
\_\_\_\_\_

10) \_\_\_\_\_



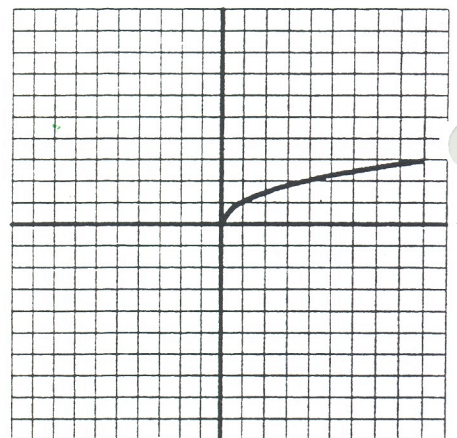
\_\_\_\_\_

11) \_\_\_\_\_

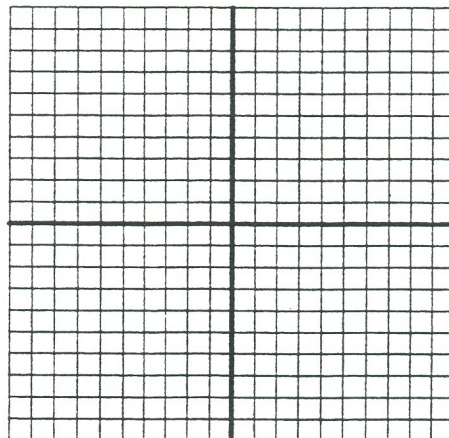


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12) \_\_\_\_\_



\_\_\_\_\_





## SYMMETRY, TRANSLATIONS AND REFLECTIONS

Translations of  $y = f(x)$

Ex)  $y = \sqrt{x}$  using 4 units

	General	Example
Horizontal shift $c$ units to the right		
Horizontal shift $c$ units to the left		
Vertical shift $c$ units downward		
Vertical shift $c$ units upward		
Reflected about the $x$ -axis		
Reflected about the $y$ -axis		

Stretching and shrinking of  $y = cf(x)$

	Example
If $c > 1$ graph stretches (narrower)	
If $0 < c < 1$ graph shrinks (wider)	

Symmetry

	Ordered Pairs	Equations
Symmetric to the $y$ -axis		
Symmetric to the $x$ -axis		
Symmetric to the origin		

Odd and Even Functions

Even	
Odd	